

#### **4. Service Inquiry and Ordering Guidelines**

Following are the forms required to submit an order to the LCSC:

- Local Service Request Form
- End User Information Form
- Resale Service Form

Copies of the forms with line-by-line instructions are located in the Resale Ordering Guide.

**Flat Rate Basic Local Exchange Business Line  
CLEC Information Package**

**1. Service Description**

**A. Basic Service features**

Flat Rate Basic Local Exchange Service for business customers provides access to the public switched network for local and long distance calling. Flat rate service is unmeasured, allowing the subscriber to make an unlimited number of calls within the local calling area at a fixed monthly rate.

**B. Basic Service Capabilities and Restrictions**

The service is comprised of the exchange access line, which includes the central office equipment and all the BellSouth plant facilities up to and including the Standard Network Interface. The exchange access line facilities are BellSouth provided and maintained.

**C. How Does This Service Work**

This service provides basic dial tone for business customers.

**D. Feature Interaction**

None.

**2. Tariff References/Price List References**

Basic Local Exchange Business Service can be found in Section A3 of the BellSouth Telecommunications, Inc. General Subscriber Services Tariff (GSST) in each of the nine states served by BellSouth.

**3. Installation Intervals**

Normal Installation Intervals YES X NO      
Project Coordination Required YES     NO X

**4. Service Inquiry & Ordering Guidelines**

**A. Information required**

No service inquiry required.

**B. Source of Information**

CLEC will fax a Local Service Request form (LSR) to the LCSC for processing

**C. Forms**

Local Service Request form (LSR)

## **5. Customer Education**

### **A. Availability of Material**

Informational material not required.

### **B. Training Availability**

Training not required.

### **C. Costs**

Not applicable.

### **D. How To Order**

Not applicable.

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## **FlexServ® Service CLEC Information Package**

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## **Service Description**

FlexServ service is a BellSouth Customer Network Management (CNM) service that allows customers to do real time configuration management and alarm surveillance of their lease line digital/analog facility network provisioned through a Digital Cross Connect System. Configuration management includes DS0, DS1, and DS3 connections with switching at DS0, DS1 or DS3 depending on the type of connection. Availability of specific customer connection is dependent on the network equipment and facility availability. The customer must also order separately the digital or analog facilities that are managed with FlexServ service. Alarm surveillance includes both intrusive and performance alarms.

The customer must order a Management Terminal Interface to access the service. Customers can access the service through a customer-provided terminal on a dial-up or dedicated basis. When the service is ordered, the customer is provided one log-in (User Access). With this access, only one customer user is allowed access to the configuration and alarm management features. However, the customer can order additional log-ins and additional concurrent users.

FlexServ allows customers complete flexibility in managing and reconfiguring their analog or digital private line networks. Single and multiple DS0 channels (up to 24) can be established with one command input by the customer. FlexServ also provides Automatic Circuit Rerouting which is preplanned and definable by the user and based on an occurrence of selectable alarm conditions. FlexServ will provide time of day transaction scheduling. The customer has the capability of creating network macro commands which will execute multiple transactions.

With FlexServ, customers can benefit from the following:

- Schedule and control the use of their facilities
- Reduce the number of dedicated private lines if the dedicated facilities are used less than 100 percent of the time
- Electronically cross connect and route their own traffic
- Diagnose network problems and minimize circuit outages
- Monitor network performance through receipt of intrusive and performance alarms

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FlexServ applications include the following:

- Disaster recovery for networks
- Circuit consolidation and facility optimization
- Integrated voice/data network management
- Network performance and alarm monitoring
- Video conferencing
- LAN interconnection
- Time of day scheduling for applications
- Automatic circuit re-routing

### **Basic Service Features**

**DS0 Channel Connections** - provides a DS0 channel connection. Switching is only at the DS0 level. There are two types of DS0 Channel Connections - a voice grade analog connection and a digital connection.

**DS1 Channel Connections** - provides a DS1 channel connection. There are two types of DS1 Channel Connections - DS1 Channel Connection with DS0 switching and DS1 Channel Connection with DS1 switching.

**DS3 Channel Connections** - provides a DS3 channel connection. There are three switching options available with a DS3 channel connection - DS3 Channel Connection with DS0 Switching, DS3 Channel Connection with DS1 Switching, and DS3 Channel Connection with DS3 Switching.

**Dial Management Terminal Interface** - provides a dial-up customer connection to the FlexServ management features. This interface will support 1.2 Kbps through 19.2 Kbps access. The customer must provide a terminal, dial-up modem, and a local line to dial into the interface. A Security card must be ordered for password access to the dial-up interface. Instructions are addressed in the attached documentation.

**Dedicated Management Terminal Interface** - provides a dedicated customer connection to the FlexServ management features. This interface will support an analog or digital connection. The analog connection can support 1.2 Kbps or 9.6 Kbps. The digital connection can support 2.4 Kbps, 4.8 Kbps or 9.6 Kbps. The customer must provide a terminal and a compatible data set at a selected customer premises. The customer will also order a dedicated analog or digital network facility to a BellSouth designated location to complete the connection. Instructions are addressed in the attached documentation.

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## Optional Service Features

Multi-point bridging - provides the capability to bridge digital or analog FlexServ Customer Connections providing a multi-point facility. There are three types of bridging available - Analog bridging, Digital bridging at 2.4, 4.8, 9.6 or 56 Kbps, and Digital bridging at 19.2 Kbps.

Subrate Reconfiguration Capability - provides the capability to multiplex subrate facilities. This feature is available at 2.4 Kbps, 4.8 Kbps and 9.6 Kbps. The feature is ordered to support a specific speed and a predetermined number of facilities, 20 - 2.4 Kbps, 10 - 4.8 Kbps, and 5 - 9.6 Kbps facilities.

## Network Components

FlexServ service is made up of two network components: Digital Cross-connect System (DCS) and a Network Controller.

Digital Cross-connect System (DCS) - a micro-processor controlled framed which allows automatic, electronic cross-connections (reconfiguration) of a digital channel. The DCS is located in a BellSouth central office. Only central offices equipped with such provisioning can provide such service.

FlexServ Customer Network Controller (CNC) - an interface to the DCS which uses various software and hardware components. The controller contains a user interface which accepts customer instructions, reformats them into a structure understood by the DCS, receives acknowledgment from the DCS, and provides feedback to the customer. The customer communicates with the controller via a User Access Management Terminal Interface (MTI) and CPE located at the customer's premises.

Connections between the FlexServ Controller and the DCS are provided by BellSouth and are transparent to the customer.

The customer must provide his or her own equipment and subscribe to a switched service or an analog or digital private line between his or her premises and the nearest Packet Switching Node. From this point to the FlexServ Controller, and from the Controller to the DCS, BellSouth facilities are used. One User Access connection is provided with basic FlexServ service which includes a password and customer identification code. FlexServ employs a multi-level security system to ensure the

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privacy of customer network, requiring the customer to enter a log-in identification number and password to gain access.

Customer circuits which can connect to FlexServ for reconfiguration may be ordered at the DS0, DS1, or DS3 level.

### **Three Communication Interfaces**

#### **Customer to CNC link**

The customer must subscribe to access to the Network Controller. This access can either be dial-up or private line.

- Dial-up access utilizes the Corporate DIALS Network which is supported by the Datakit Virtual Circuit Switched Network (VCSN). The VCSN utilizes a Network Access Computer (NAC) to provide security for accessing the Network Controller. The customer will be issued a Security card providing a 6-digit password which will change every 60 seconds. By using VCSN with a Security card, FlexServ customers can access the Network Controller at speeds ranging from 1.2 Kbps to 19.2 Kbps.
- Private line access utilizes the PulseLink X.25 Corporate Network. The customer may subscribe to SynchroNet service at 2.4, 4.8 or 9.6 Kbps or to analog private line at 1.2 or 2.4 Kbps.

With Customer to CNC Link, the customer may choose:

- Dial interface (1.2 - 19.2 Kbps) using the Security card
- 1.2 Kbps, 4- wire analog private line
- 9.6 Kbps, 4- wire analog private line
- 2.4 Kbps, 4- wire digital private line
- 4.8 Kbps, 4- wire digital private line
- 9.6 Kbps, 4- wire digital private line

#### **CNC to DCS link**

Communication between the Network Controller and each DCS is accomplished via a link. This link provides a two-way communications path over which the Network Controller sends commands to the DCS. The DCS acknowledges receipt and completion of the commands and provides status information.

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## **Network Administrator to CNC Link**

In addition to customer terminal access to the Network Controller, the FlexServ architecture also includes Network Administrator terminals located in centralized locations. This access allows the Company to perform network and security transactions in the Network Controller to support the service. It is the responsibility of the FlexServ Network Administrators and Corporate Communications to order and install this link.

## **Access Links & Interoffice Facilities**

FlexServ provides the customer with the capability to manage and reconfigure their special and switched service networks. It is not a stand alone offering. Thus, the third major component in a FlexServ network are the access links the customer will be controlling. Circuits from the customer premises to the central office DCS are called access links (end links). Circuits between the DCSs are called inter-DCS circuits (mid links). Price access and inter-DCS links from the appropriate tariffs based upon the type of service required by the customer (SynchroNet®, MegaLink®, etc.)

- Digital Private Lines - SynchroNet®, MegaLink®, LightGate®
- Analog Private Lines - analog data
- Local Exchange Services - trunk equivalent (IntraLata jurisdiction only)

## **Tariff References/Price List References**

FlexServ is currently tariffed in all BellSouth states. DS3 Customer Connections are tariffed in all states except North Carolina and South Carolina. DS3 Customer Connections with DS3 switching is only available in Alabama and Georgia state General Subscriber Service Tariffs. The FlexServ tariff is located in Section A32.1 of the state-specific General Subscriber Service Tariff.

FlexServ is furnished only from central offices which have been equipped with DCS and is provided subject to availability of appropriate facilities. A minimum service period of one month is required and suspension of service is not allowed. All service on channels to the DCS may not be compatible, and therefore, certain reconfiguration combinations are denied. BellSouth will not be responsible for service interruptions, troubles, loss of customer data, etc. resulting from invalid

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reconfiguration attempts. Reconfiguration and monitoring are not available during the performance of routine maintenance of BellSouth's facilities.

The pricing structure for the Customer Connections will be based on both the type customer connection and the desired switching level. The pricing structure for the Management Terminal Interface will be based on the type of access, dial-up or dedicated, and the desired transmission speed. In addition, the price of the dedicated access option will depend on whether the customer selects an analog or digital connection to the interface. Optional FlexServ features will vary according to the options available with each feature.

All FlexServ service feature prices will consist of both a non-recurring installation charge and/or a recurring charge. The recurring charge will be offered with the following payment periods:

- Month-to Month Payment Plan
- 24 to 48 Month Term Payment Plan
- 49 to 72 Month Term Payment Plan
- 73 to 96 Month Term Payment Plan

The customer must select the payment plan and the monthly recurring charge will vary according to the payment plan selected. If the customer selects a Term Payment Plan, they are not subject to BellSouth initiated rate changes during the period covered by the Term Payment Plan. At the end of the selected Term Payment Plan, the customer can elect to select a new payment plan as offered in the current tariff or the service will revert to the current Month-to-Month payment plan. The customer can also elect to resubscribe to a Term Payment Plan equal to or greater than the length of their current Term Payment Plan. If the customer disconnects this service before the end of the Term Payment Plan, the customer is subject to Termination Liability charges.

### **Installation Intervals**

Normal Installation Intervals	No
Project Coordination Required	Yes

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## **Service Inquiry and Ordering Guidelines**

To order FlexServ Service, the CLEC should submit the following forms to the BellSouth CLEC Account Team:

- Local Service Request (LSR)
- End-User Information Form

Both forms are available in the Resale Ordering Guidelines.

For all initial or subsequent order activity on FlexServ Service, contact your BellSouth CLEC Account Team.

As information, a Service Inquiry is required to determine intervals and any extraordinary costs associated with the provisioning of FlexServ and a FlexServ Inquiry is required to determine the availability on the official FlexServ network.

Installation will depend on the availability of DCS and DCS connectivity options and the availability of communications links from the DCS to the FlexServ CNC processor.

Repair intervals for DCS links and customer access to the CNC processor will be reported and tracked by the FlexServ CNC center. Customer access links (dial-up or dedicated) and customer analog or digital services controlled by FlexServ are reported to the appropriate repair organization and intervals will be driven by the specific service the customer is terminating into FlexServ.

The FlexServ Customer Network Control Center (CNCC) will input and maintain the customer database for both the retail and wholesale service. Service Inquiries (SI) will be required for each service to determine the availability of the service. As such the CNCC will have to deal with BellSouth and the reseller account team. All other centers will operate as usual.

### **Information that will need to be provided:**

- Customer name, address, telephone number
- Customer contact name, contact telephone number
- Independent company name (ICO - if any)
- CDS switch address, CLLI code
- Purchase order number
- Payment plan
- Type of order (new, change, disconnect)
- Customer's desired due date

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- Physical access

**Things to Consider:**

- Make sure you provide the ICS Account Team a diagram of the network. This will clarify any issues on the orders and help your implementation go smoother.
- Provide naming information to the ICS Account Team.
- Be careful especially in situations where independent telephone company territories are involved.
- Make sure the carrier of choice is aware of which central office and which DCS within a given central office. Provide them with the central office name, address, and the DCS CLLI code.
- Keep good records of all the circuit IDs involved. IDs are not only assigned to central office to customer premises circuits but also to inter-MJU circuits.

FlexServ service requests will always require the use of a Service Inquiry and a FlexServ Inquiry. This will be true whether the order is firm or not. If a non-firm SI is issued and the customer decides to buy the service, a follow-up, firm order SI will be required for certain engineering work groups.

**TAB 45**

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# **Unbundled Packet Switching**

## **Technical Service Description**

### **January 27, 1997**

## Unbundled Packet Services

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# Fast Packet Services Unbundled Network Elements

## Technical Service Description

The outline of the Technical Service Description is shown in the following table.

Section	Topic
1	Market Service Description
2	Network Architecture
3	Performance Standards & Reliability
4	OAM&P

## 1. Market Service Description

### 1.1 Basic Service Capabilities

#### 1.1.1. Frame Relay Service

Frame Relay Service is connection oriented packet mode service based on the X.25 LAP-D standards. Frame Relay provides the user access links with speeds from 56/64 Kbps to 44.210 Mbps. With Frame Relay technology, data is taken from the end-device terminal, packaged into variable length frames, and transported through the network on predefined logical channels. The frame's format consists of a opening flag followed by

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a two octet address field, a user data field, a frame check sequence, and a closing flag. Improved performance over existing packet switching is achieved with Frame Relay by elimination of link-by-link error monitoring.

Frame Relay offers one version of service, at present, Permanent Virtual Circuits (PVC). The PVC Frame Relay service allows the user to set up a series of point-to-point virtual circuits through the network. A PVC is provisioned via a service order when service is established and taken down when service is discontinued.

From a technical perspective, the greatest strength of Frame Relay is that much of the error correction and control information overhead of the X.25 protocol is eliminated. Since PVC Frame Relay establishes a "nailed-up" connection between two locations in the network, large variable length frames can be sent back and forth without as much control information and validation at intermediate nodes. Traditional X.25 packet traffic consists of small fixed length packets which require a great deal of checking and validation at every intermediate node to ensure that all elements are delivered and re-compiled in the correct sequence. Frame Relay should provide greater network throughput and reduced delay by reducing overhead and link level processing at intermediate nodes.

Almost any protocol can be carried transparently by Frame Relay service. If protocol conversion is required, the conversion is performed by the customer's end-device terminal.

### **1.1.2 Connectionless Data Service**

Connectionless Data Service (CDS) is a low to medium speed (56 Kbps to 45 Mbps) public packet switched service which is used to extend Local Area Network (LAN) characteristics over a wide area. The term "connectionless" means that each packet is addressed and routed separately without first establishing a network connection. The customer's equipment must support the Level 3 functions of SMDS using the Data Exchange Interface (DXI) protocol to communicate with the CDS switch. An SMDS-equipped DTE will provide the SMDS Level 3 functions and support the DXI protocol. To support DXI, most DTE (e.g. routers) only require a software upgrade. For transport via CDS, user data is encapsulated in packets called SMDS Interface Protocol (SIP) Level Three Protocol Data Units. (L3\_PDU). Each L3\_PDU is addressed and switched independently, without a previous establishment of a network connection or a virtual call. Each L3\_PDU may contain up to 9,188 octets of information. This allows CDS packets to encapsulate entire packets from most LANs (e.g. Ethernet, Token Ring, FDDI). To be viable, CDS must appear "transparent" to the end-user.

The DXI protocol's overhead is 4 bytes per data frame, whereas the overhead on SMDS 802.6 links is 9 bytes for every 44 bytes of data, which provides approximately 20% savings in overhead.

Initially, CDS is expected to be largely used for LAN-to-LAN interconnection. Therefore, it must satisfy the applications already supported on LANs. Some example applications which could be supported are: Desktop Publishing and Computer-Aided Design, Engineering and Manufacturing (CAD/CAE/CAM). The end-users of

these applications should experience communications fast enough and with small enough delay that they do not perceive performance degradation for functions performed remotely rather than within the LAN environment.

## **1.2 Basic Service Features**

Unbundled Packet Switching (UPS) consist of four basics elements. The UPS User Network Interface (UNI), the Subscriber Network Interface (SNI), the UPS Network to Network Interface (NNI) and the Switch to Switch Interface (SSI).

### **1.2.1 Unbundled Packet Switching -User Network Interface**

The UPS-UNI provides end-user connection to the Fast Packet switched network. UNI ports are available at line rates of 56 and 64 kbps (DS0), 1.536 Mbps (DS1) and 44.210 Mbps(DS3). UNIs are available for Frame Relay Service (FRS) only .

#### **1.2.1.1 UPS-UNI FRS 56 Kbps**

Provides a 56 kbps access port to Frame Relay Service configured as a User Network Interface (UNI).

#### **1.2.1.2 UPS-UNI FRS 64 Kbps**

Provides a 64 kbps access port to Frame Relay Service configured as a User Network Interface (UNI).

#### **1.2.1.3 UPS-UNI FRS 1.536 Mbps**

Provides a 1.536 Mbps access port to Frame Relay Service configured as a User Network Interface (UNI).

#### **1.2.1.4 UPS-UNI FRS 44.210 Mbps**

Provides a 44.210 Mbps access port to Frame Relay Service configured as a User network Interface (UNI).

### **1.2.2 Unbundled Packet Switching - Subscriber Network Interface**

The UPS-SNI provides end-user connection to the Fast Packet switched network. SNI ports are available at line rates of 56 and 64 kbps (DS0), 1.536 Mbps (DS1) and 44.210 Mbps(DS3). SNIs are available for Connectionless Data Service (CDS) only.

#### **1.2.2.1 UPS-SNI CDS 56 Kbps**

Provides a 56 kbps access to Connectionless Data Service configured as a Subscriber Network Interface (SNI).

**1.2.2.2 UPS-SNI CDS 64 Kbps**

Provides a 64 kbps access to Connectionless Data Service configured as a Subscriber Network Interface (SNI).

**1.2.2.3 UPS-SNI CDS 1.536 Mbps**

Provides a 1.536 Mbps access to Connectionless Data Service configured as a Subscriber Network Interface (SNI).

**1.2.2.4 UPS-SNI CDS 44.210 Mbps**

Provides a 44.210 Mbps access to Connectionless Data Service configured as a Subscriber Network Interface (SNI).

**1.2.3 Unbundled Packet Switching - Network to Network Interface**

Unbundled Packet Switching - Network to Network Interface (UPS-NNI) provides connection to the Fast Packet switched network. NNI ports are available at line rates of 56 and 64 kbps (DS0), 1.536 Mbps (DS1) and 44.210 Mbps (DS3). UPS-NNIs are available for Frame Relay Service only.

**1.2.3.1 UPS-NNI FRS 56 Kbps**

Provides a 56 kbps access port to Frame Relay Service configured as a Network to Network Interface (NNI).

**1.2.3.2 UPS-NNI FRS 64 Kbps**

Provides a 64 kbps access port to Frame Relay Service configured as a Network to Network Interface (NNI).

**1.2.3.3 UPS-NNI FRS 1.536 Mbps**

Provides a 1.536 Mbps access port to Frame Relay Service configured as a Network to Network Interface (NNI).

**1.2.3.4 UPS-NNI FRS 44.210 Mbps**

Provides a 44.210 access port to Frame Relay Service configured as a Network to Network Interface (NNI).

**1.2.4 Unbundled Packet Switching - Switch to Switch Interface**

Unbundled Packet Switching - Switch to Switch Interface (UPS-SSI) provides connection between the BellSouth Fast Packet switched network and customer owned Fast Packet switched networks. SSI ports are available at line rates of 56 and 64 kbps (DS0), 1.536 Mbps (DS1) and 44.210 Mbps (DS3). UPS-SSIs are available for Connectionless Data Service only.

**1.2.4.1 UPS-SSI CDS DS0**

Provides a 56 kbps access to Connectionless Data Service configured as a Switch to Switch Interface (SSI).

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**1.2.4.2 UPS-SSI CDS 64 Kbps**

Provides a 64 kbps access to Connectionless Data Service configured as a Switch to Switch Interface (SSI).

**1.2.4.3 UPS-SSI CDS 1.536 Mbps**

Provides a 1.536 Mbps access to Connectionless Data Service configured as a Switch to Switch Interface (SSI).

**1.2.4.4 UPS-SSI CDS 44.210 Mbps**

Provides a 44.210 Mbps access to Connectionless Data Service configured as a Switch to Switch Interface (SSI).

**1.2.5 Unbundled Packet Switching - Frame Relay Data Link Connection Identifier (DLCI)**

Unbundled Packet Switching - Frame Relay Data Link Connection Identifier (DLCI) provides a local address by which a Frame Relay data link can be identified and mapped together to provide an end-to-end permanent virtual circuit (PVC).

**1.2.6 Unbundled Packet Switching - Frame Relay Committed Information Rate (CIR)**

Frame Relay Committed Information Rate is an element designed provide the end-user with a sustained throughput under normal conditions. CIR is offered at the following rates:

0 Bps

Over 0 thru 32 Kbps

Over 32 thru 56 Kbps

Over 56 thru 64 Kbps

Over 64 thru 128 Kbps

Over 128 thru 256 Kbps

Over 256 thru 384 Kbps

Over 384 thru 512 Kbps

Over 512 thru 768 Kbps

Over 768 thru 1.536 Mbps

Over 1.536 thru 4 Mbps

Over 4 Mbps thru 10 Mbps

Over 10 Mbps thru 16 Mbps

Over 16 thru 34 Mbps

Over 34 thru 44.210 Mbps

## **1.2.7 Unbundled Packet Switching - Connectionless Data Service Optional Features**

### **1.2.7.1 UPS- CDS Individual Addresses**

Provides the customer with multiple addresses associated with one CDS SNI. A maximum of 16 addresses is allowed per SNI.

### **1.2.7.2 UPS - CDS Individual and Group Address Screening Table**

Address screening allows restrictions to be reinforced on the delivery of CDS packets to particular destinations. This feature allows the customer to set up two lists of addresses per SNI. One list defines destination address screening for individually addressed packets and source address screening for all packets (whether individual or group addressed). The second list defines destination address screening for group addressed data sent by the CPE. The combined total of addresses in both tables may not exceed 128.

### **1.2.7.3 UPS - CDS Group Address List**

This feature allows the customer to pre-assign a list of individual SNI addresses as a Group Address. With this feature invoked, data that is sent to the Group Address will be reproduced by the CDS network and sent to every SNI that has an address on the list. A maximum of 128 SNI addresses may be contained in one Group Address List.

## **1.3 Forecast - Regional**

Regional and State level forecast can be found in Attachment 2.

## **1.4 Pricing Structure**

The Unbundled Packet Switching UNEs represent dedicated Fast Packet switch resources which are inventoried, designed, assigned and provisioned as required to support the various elements. Non-recurring charges are required to recover costs associated with the design and provisioning of the elements lists in 1.2 above. Recurring charges are developed to recover to cost associated with the physical plant which is required to provide the service.

## **1.5 Deployment Schedule**

UPS - FRS and CDS are available in all LATAs of BellSouth.

### **1.6 Distribution Channels**

Distribution channel for the sale of UPS - FRS and CDS UNEs will be via individually negotiated contracts with each Other Local Exchange Company (OLEC) until tariffs have been filed.

### **1.7 Product Codes**

Product codes have been established for tracking Frame Relay and CDS. The codes assigned are as follows:  
Frame Relay Service - 091, Connectionless Data Service - 099.

### **1.8 Advertising and Promotion Plans and Requirements**

It is anticipated that the UNE will be advertised in a BellSouth Region wide brochure or mail campaign. There are no plans to do specific advertising for the Fast Packet UNEs.

### **1.9 Customer Training Considerations**

Training will be developed for the Interconnection Services Account Teams and the customers. It is anticipated that the training will be delivered one time per customer and may include a train the trainer session to accommodate further customer requirement for training.

### **1.10 Staff Support Requirements**

Staff Support Requirements are listed in Attachment 2.

## **2. Network Architecture**

### **2.1 Physical Network Configuration**

The UNEs which provide the BellSouth Fast Packet Services represent equipment which comprises a physical overlay network. The services are provided from two classes of switch. First, the Cascade B-STDX 9000 provides a "edge switch" functionality. The 9000 provides all of the DS0 connections to the BellSouth Fast Packet Network (see Figure 1.). The 9000 will provide the majority of the DS1 connections for FRS and all of the DS1 connections for CDS.

Signaling for FRS and CDS are internal to the overlay Fast Packet network. The Fast Packet Services are all flat rated at this time and do not require AMA recording. It is anticipated that usage based billing will be offered in mid to late 1997. However, billing structure and format has not been established.

Transport associated with the Fast Packet UNE will be via either existing Special Access Transport (DDAS, DS1 and DS3 High Capacity) or unbundled transport elements.

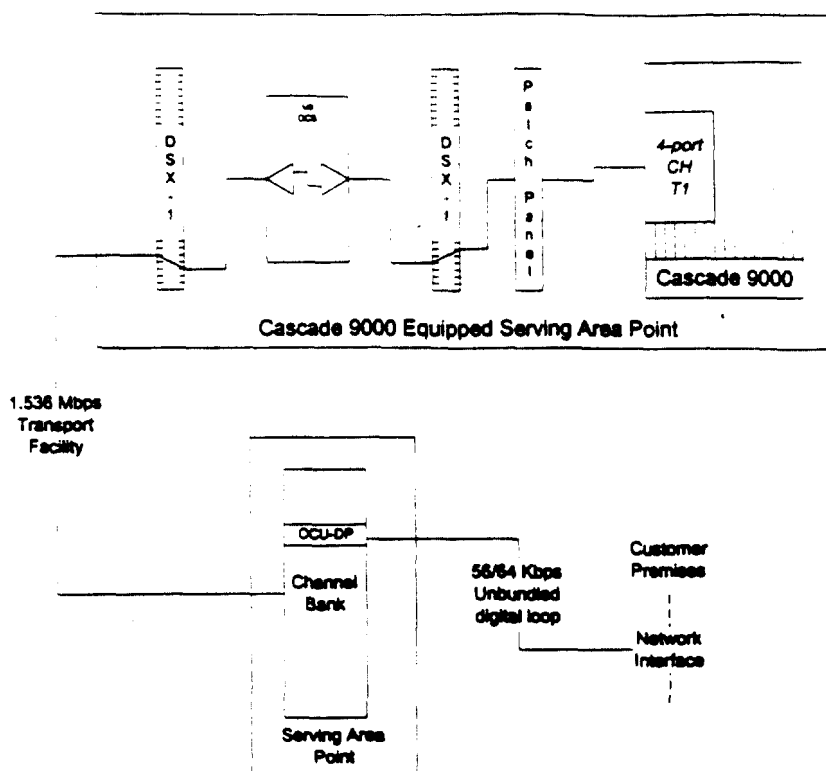


Figure 1. DS0 End-User Access to UPS

The UPS DS0 is provided via the Cascade 9000 4-Port Channelized T-1 card (see Figure 1.) Connection to an unbundled transport element or Special Access circuit is at the switch. The physical connection depicted in Figure 1. and 2. provides for the following UNEs: DS0 FRS UNI, DS0 FRS NNI, DS0 CDS SNI, DS0 CDS SSI.

Connections to the UPS UNEs via the configuration depicted in Figure 1. are typical of the Frame Relay and CDS User Network Interface and Subscriber Network Interface. Connections to OLEC networks are typically provided as shown in Figure 2.

In both Figure 1. and 2. the UPS UNEs provide the port on the Fast Packet Switch. Transport elements, Special Access or UNEs are required to interface with the port.



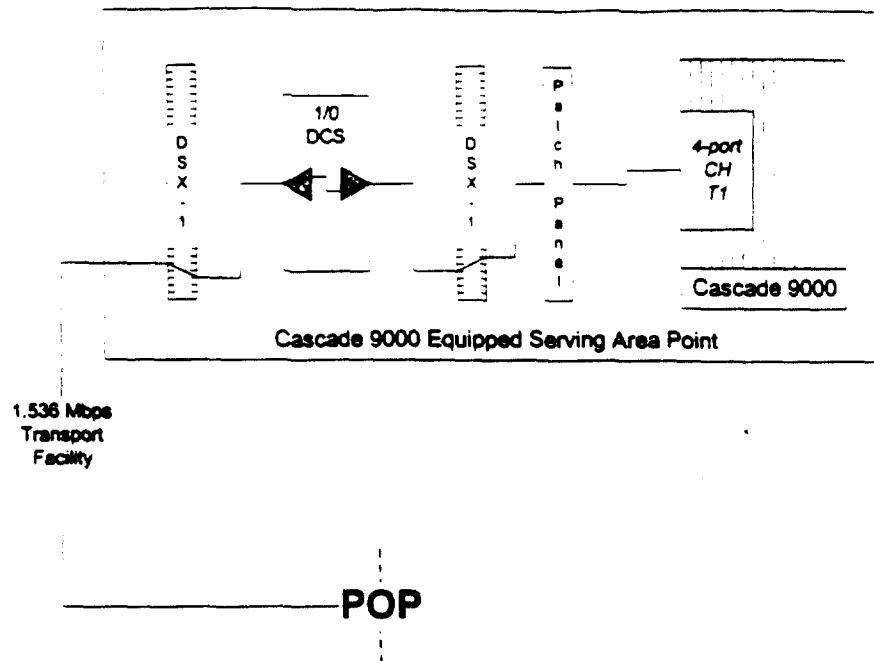


Figure 2. DS0 OLEC Network Access to UPS

The UPS - FRS DS1 is provided via the 10 Port non-channelized port card. The connection to the transport service is at the DSX-1 cross-connect nearest to the Cascade BSTD-X 9000 (see Figure 3.) The physical connection depicted in Figure 3. provides for the following UNEs: DS1 FRS UNI, DS1 FRS NNI, DS1 CDS SNI, DS1 CDS SSI.